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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,641	12/02/2003	Pierre Dierickx	2003-1733A	2011

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EXAMINER

YEE, DEBORAH

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,641

Applicant(s)

PIERRE DIERICKX ET AL

Examiner

Deborah Yee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12-02-03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 to 10, 12, 13 and 16 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US Patent 6,558,483).

3. Nakamura on lines 1 to 67 of column 1 and lines 1 to 25 of column 7 discloses method of fabricating a steel part by hot rolling at 950 to 1250C (overlaps claimed range of 1100 to 1300C) to form blank, control cooling at 1 to 50c/sec(overlaps a rate of less than or equal to 3C/sec recited by claim 18), reheating to perform precipitation at 450 to 680C for at least 1 hour (see lines 25,32,and 42 in column 9). Moreover Nakamura discloses a steel alloy, being processed, having a composition with constituents whose wt% ranges overlap those recited by the claims. Note that such overlap in alloy wt% ranges and temperature and cooling rates establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to select the claimed ranges from the broader disclosure of the prior art since the prior art has similar properties of high strength and toughness, see MPEP 2144.05.

4. More specifically, note steel 31 in table 1 of columns 11-12 which meet the claimed composition except fails to include trace amounts of Cr, Mo and V. These elements, however, would be obvious to incorporate since they are taught in prior art

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claim 1 of column 16 as additional alloying constituents. Moreover, similar to the claimed process, Table 1 discloses processing alloy by heating at 1220C, cooling at 18C/sec, reheating to 560C for aging.

5. Prior art claims 1 to 8 in columns 16 to 18 recite a steel containing additional alloying constituents in wt% ranges that overlap those recited by dependent claims 2 to 10 .

6. Specific steel 31 in table 1 of columns 11 and 12 teaches annealing and aging at 560C, and is within the claimed temperature range of 425 to 600C and 425 to 500C recited by claims 12 and 13, respectively. Also prior annealing time is 1 to 10 hours (see line 14 and 25 of column 9) and hence within applicant's range of 1 to 10 hours recited by claim 13.

7. Nakamura teaches hot rolling which meets claim 16. Although hot forging recited by claim 17 is not taught by prior art, such would not be a patentable difference since it would be a matter of choice well within the skill of the artisan to substitute hot forging with hot rolling since they are both well known techniques in the metallurgical art for hot deforming steel, and thus can be used interchangeably depending on the desired steel shape sought.

8. In regard to claim 18, Nakamura on lines 35 to 49 and lines 59 to 67 of column 6 teaches air cooling at a rate of at least 1C/sec (overlaps claimed rate of 3C/sec or less) to a temperature range not higher than 580C (overlaps claimed range of 600 to 300C).

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9. Nakamura discloses specific steel part, alloy 31 in Table 1, having tensile strength (TS) at 815MPa and Yield strength (YS) at 700MPa which meet limitations recited by claims 19 and 20.
10. Claims 1 to 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 2001-152246.
11. Similar to the present invention, the machined English translation of JP'246 in paragraph 17 discloses a method of fabricating a steel part comprising the steps of preparing and casting a steel alloy, hot deforming by hot forging or hot working, controlled cooling to 1173K (900C) or less at a rate of at least 0.5 K/sec (equivalent to 0.5C/sec because same rate ratio) and aging at 723 to 873K (450 to 600C). Even though prior art does not specifically teach hot deforming at 1100 to 1300C as recited by claim 1, such temperature would be expected since JP'246 starts cooling after hot deforming at 900C or less.
12. Moreover, the steel alloy being processed has a composition with constituents whose wt% ranges overlap those recited by the claims. Note that such overlap in wt% ranges establishes a prima facie case of obviousness because it would be obvious to one of ordinary skill in the art to select the claimed alloy ranges from the broader disclosure of the prior art since the prior art has similar properties of high strength, toughness and workability. See MPEP 2144.05.
13. The English abstract of JP'246 discloses steel alloy containing additional alloying constituents with wt% ranges that overlap with those recited by dependent claims 2 to 10.

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14. JP'246 discloses specific examples B and C containing Ni and Al within the ranges recited by claims 11 and 14.

15. JP'246 in the machined English translation in paragraph 17 discloses aging at 450 to 600C which is within the 425 to 600C, 450 to 500C, 500 to 600C, and 500 to 550C recited by claims 12 to 15, respectively. Even though the claimed time range of more than 1 hour or 1 to 10 hours is not taught by prior art, such time range would be expected because the same goal of precipitation occurs. Moreover, aging time would be dependent on the desired hardness sought and would be a matter of routine optimization well within the skill of the artisan and productive of no new and unexpected results.

16. Moreover, JP'246 in Table 1 on page 5 discloses alloys A to H containing Cu within the range of 0.5 to 3.5% recited by claim 13.

17. In regard to claim 14, the English abstract of JP'246 discloses a steel containing up to 0.6% V which overlaps with 0.5 to 2% V recited by claim 14.

18. JP'246 in the machined English translation in paragraph 17 discloses hot rolling or hot forging and hence meets claims 16 and 17.

19. JP'246 in the machined English translation in paragraph 17 discloses cooling at a rate 0.5K/sec (equivalent to 0.5c/sec because the same rate ratio) from 900C to lower than temperature in the bainite field (overlaps with 600 to 300C), and hence would closely meet the limitations recited by claim 18.

20. JP'246 discloses a bainitic steel part which would closely suggest claims 19 and

20. Even though the TS of 750 to 1300MPA and YS at greater than or equal to


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500MPA recited by claim 20 is not disclosed by prior art, such properties would be expected since composition and process limitations are closely met, and in absence of proof to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday from 6:00 to 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Deborah Yee
Primary Examiner
Art Unit 1742

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